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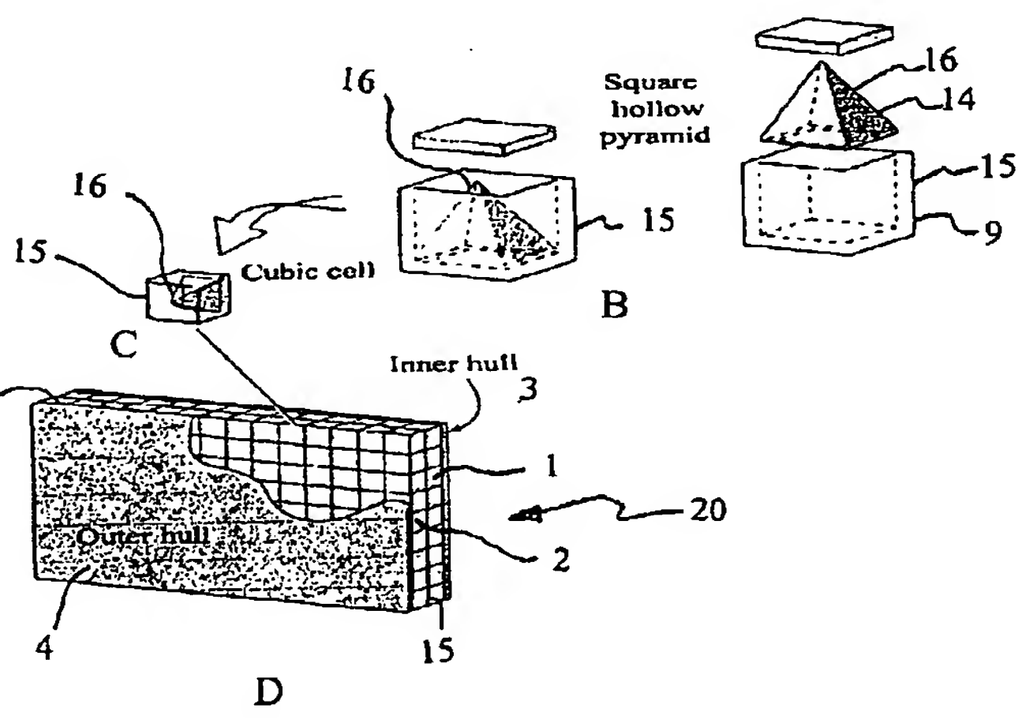
(54) **Title:** METHOD FOR MANUFACTURE OF CELLULAR MATERIALS AND STRUCTURES FOR BLAST AND IMPACT MITIGATION AND RESULTING STRUCTURE



(57) **Abstract:** Provided is the utilization of face panels (20) containing core materials (16) topologically structured at small scale, relative to a system (e.g. ship hull) that utilize them. They are optimized to absorb or reflect the energy subject to their while also possessing the ability to efficiently support high structural loads. It is entirely compatible with double-hull ship design concepts, because the volume between the hulls is used to locate the energy absorbing material substructures. The approach can be generalized to provide protection from impacts of low, intermediate or high intensity. The technology to design such structures requires materials selection and cell topology designs coupled with and techniques for the affordable manufacturing of structures that must he able to sustain severe dynamic deformations. It requires a coupling of effects occurring and phenomena that occur at the materials and structural levels.

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